

Exhibit Z: Power Spectral Density

FCC ID: P6I-COPYCAM

Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. All of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:

Low
Mid
High

Operating Modes Investigated:

No Hop

Data Rates Investigated:

Maximum

Output Power Setting(s) Investigated:

Maximum

Power Input Settings Investigated:

120 VAC, 60 Hz.

Software\Firmware Applied During Test

Exercise software	Special Test Software	Version	Unknown
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Description

The system was tested using special software developed to test all functions of the device during the test.

Equipment Modifications

No EMI suppression devices were added or modified. The EUT was tested as delivered.

EUT and Peripherals

Description	Manufacturer	Model/Part Number	Serial Number
EUT	Polyvision	CopyCam	E0200066
Control Pad	Polyvision	N/A	N/A
AC Power Adapter	Ault, Inc	P48151000A000G	N/A

Cables

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Ethernet	No	3.6	No	Control Pad	EUT
DC Power	No	4.4	No	EUT	AC Adapter

PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.

Measurement Equipment

Description	Manufacturer	Model	Identifier	Last Cal	Interval
Spectrum Analyzer	Tektronix	2784	AAO	03/08/2001	24 mo

Test Description

Requirement: Per 47 CFR 15.247(d), the peak power spectral density conducted from the antenna port of a direct sequence transmitter must not be greater than +8 dBm in any 3 kHz band during any time interval of continuous transmission.

Configuration: The peak power spectral density measurements were measured with the EUT set to low, mid, and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate and maximum output power. Per the procedure outlined in FCC 97-114, the spectrum analyzer was used as follows:

The emission peak(s) were located and zoom in on within the passband. The resolution bandwidth was set to 3 kHz, the video bandwidth was set to greater than or equal to the resolution bandwidth. The sweep speed was set equal to the span divided by 3 kHz (sweep = $(SPAN/3 \text{ kHz})$). For example, given a span of 1.5 MHz, the sweep should be $1.5 \times 10^6 \div 3 \times 10^3 = 500$ seconds. External attenuation was used and added to the reading. The following FCC procedure was used for modifying the power spectral density measurements:

"If the spectrum line spacing cannot be resolved on the available spectrum analyzer, the noise density function on most modern conventional spectrum analyzers will directly measure the noise power density normalized to a 1 Hz noise power bandwidth. Add 34.7 dB for correction to 3 kHz."

Completed by:



NORTHWEST
EMC**EMISSIONS DATA SHEET**Rev BETA
01/30/01

EUT: CopyCam		Work Order: POLV0012
Serial Number: E0200066		Date: 02/22/02
Customer: PolyVision Corporation		Temperature: 23 degrees C
Attendees: Guy Williams	Tested by: Greg Kiemel	Humidity: 38% RH
Customer Ref. No.: N/A	Power: N/A	Job Site: EV06

TEST SPECIFICATIONS

Specification: 47 CFR 15.247(d)	Year: Most Current	Method: FCC 97-114, ANSI C63.4	Year: 1992
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SAMPLE CALCULATIONS

Meter reading on spectrum analyzer is internally compensated for cable loss and external attenuation.

Power Spectral Density per 3kHz bandwidth = Power Spectral Density per 1 Hz bandwidth + Bandwidth Correction Factor.

Bandwidth Correction Factor = $10 \cdot \log(3\text{kHz}/1\text{Hz})$ **COMMENTS****EUT OPERATING MODES**

Modulated by PRBS at maximum data rate, Maximum Output Power

DEVIATIONS FROM TEST STANDARD

None

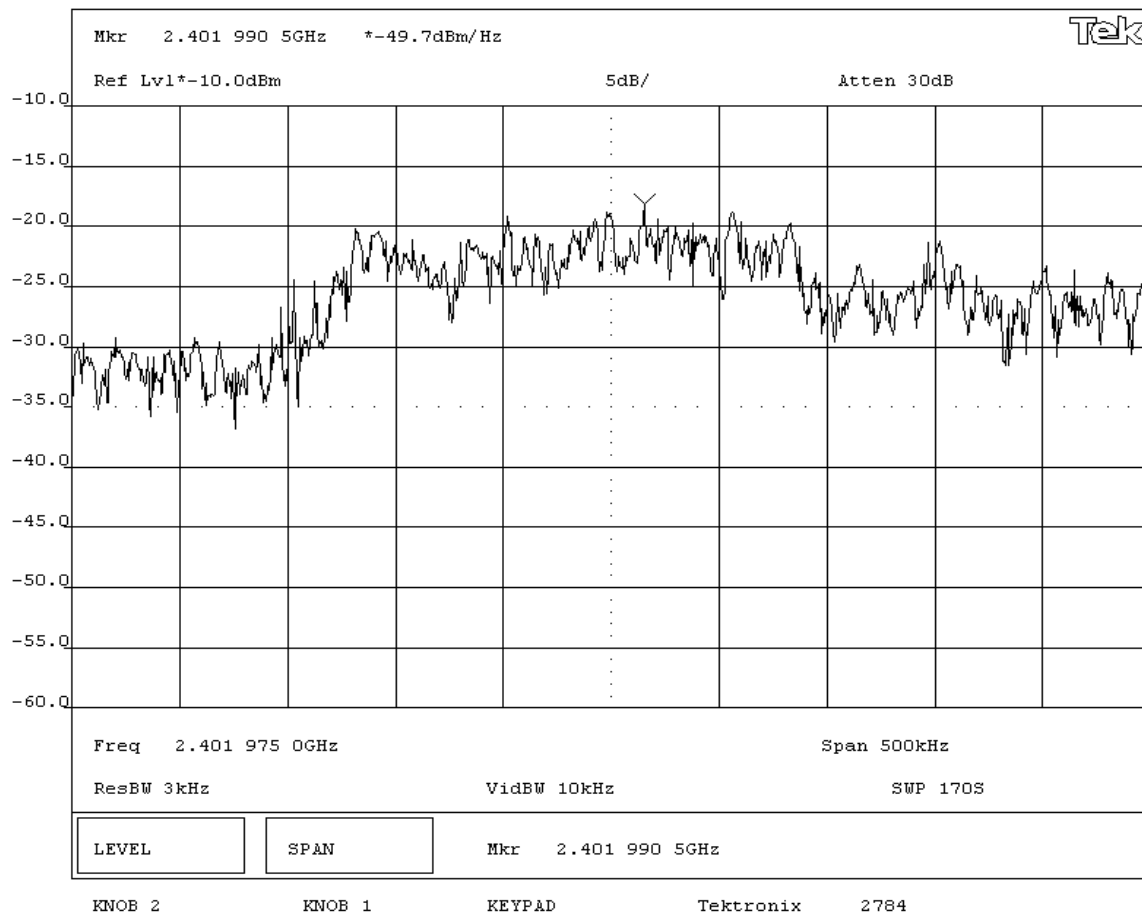
REQUIREMENTS


Maximum peak power spectral density conducted from a DSSS transmitter does not exceed 8 dBm in any 3 kHz band

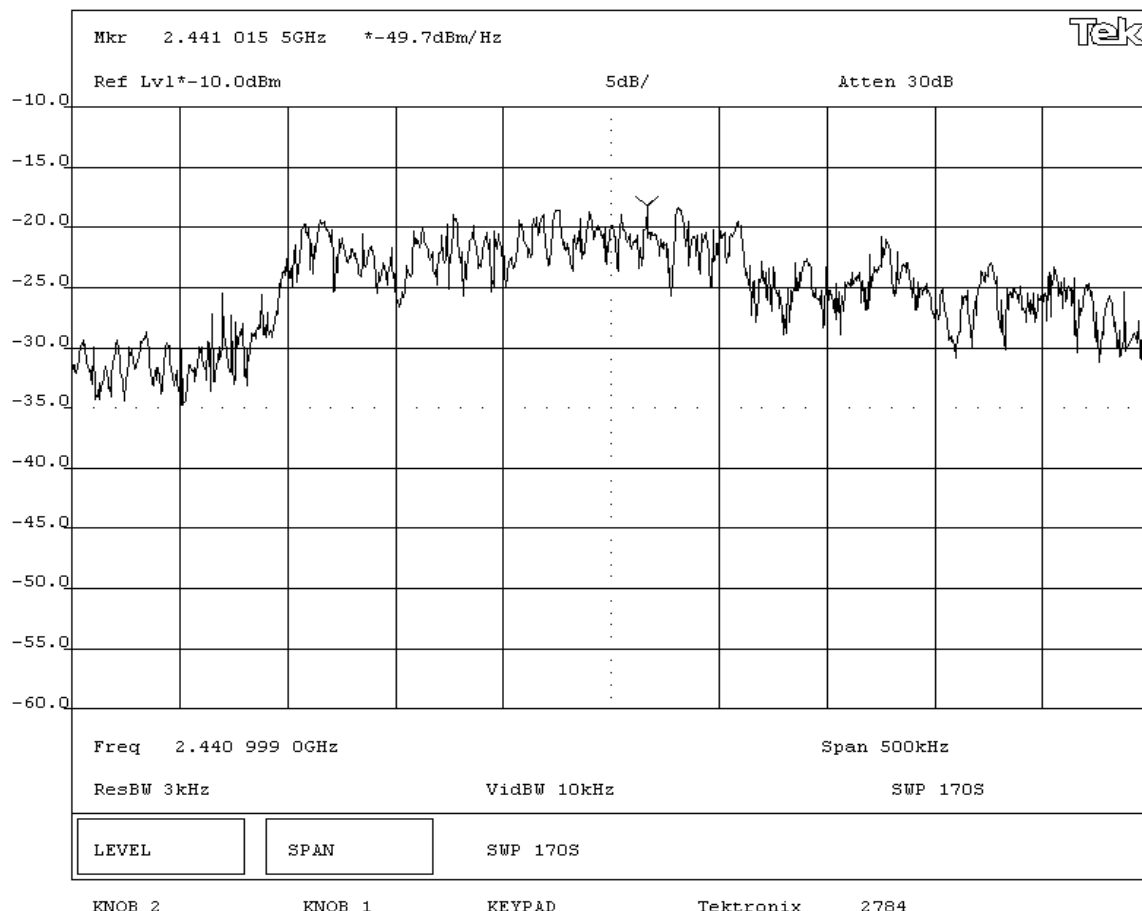
RESULTS**AMPLITUDE**


Pass

Power Spectral Density = -14.9 dBm / 3kHz

SIGNATURETested By: **DESCRIPTION OF TEST****Power Spectral Density - Low Channel**

NORTHWEST EMC				EMISSIONS DATA SHEET		Rev BETA 01/30/01	
EUT: CopyCam				Work Order: POLV0012			
Serial Number: E0200066				Date: 02/22/02			
Customer: PolyVision Corporation				Temperature: 23 degrees C			
Attendees: Guy Williams		Tested by: Greg Kiemel		Humidity: 38% RH			
Customer Ref. No.: N/A		Power: N/A		Job Site: EV06			
TEST SPECIFICATIONS							
Specification: 47 CFR 15.247(d)		Year: Most Current		Method: FCC 97-114, ANSI C63.4		Year: 1992	
SAMPLE CALCULATIONS							
Meter reading on spectrum analyzer is internally compensated for cable loss and external attenuation							
Power Spectral Density per 3kHz bandwidth = Power Spectral Density per 1 Hz bandwidth + Bandwidth Correction Factor.							
Bandwidth Correction Factor = $10 \cdot \log(3\text{kHz}/1\text{Hz})$							
COMMENTS							
EUT OPERATING MODES							
Modulated by PRBS at maximum data rate, Maximum Output Power							
DEVIATIONS FROM TEST STANDARD							
None							
REQUIREMENTS							
Maximum peak power spectral density conducted from a DSSS transmitter does not exceed 8 dBm in any 3 kHz band							
RESULTS				AMPLITUDE			
Pass				Power Spectral Density = -14.9 dBm / 3kHz			
SIGNATURE							
<div style="text-align: center;">  Tested By: _____ </div>							
DESCRIPTION OF TEST							
Power Spectral Density - Mid Channel							



NORTHWEST EMC				EMISSIONS DATA SHEET				Rev BETA 01/30/01	
EUT: CopyCam						Work Order: POLV0012			
Serial Number: E0200066						Date: 02/22/02			
Customer: PolyVision Corporation						Temperature: 23 degrees C			
Attendees: Guy Williams				Tested by: Greg Kiemel		Humidity: 38% RH			
Customer Ref. No.: N/A				Power: N/A		Job Site: EV06			
TEST SPECIFICATIONS									
Specification: 47 CFR 15.247(d)			Year: Most Current		Method: FCC 97-114, ANSI C63.4			Year: 1992	
SAMPLE CALCULATIONS									
Meter reading on spectrum analyzer is internally compensated for cable loss and external attenuation									
Power Spectral Density per 3kHz bandwidth = Power Spectral Density per 1 Hz bandwidth + Bandwidth Correction Factor.									
Bandwidth Correction Factor = $10 \cdot \log(3\text{kHz}/1\text{Hz})$									
COMMENTS									
EUT OPERATING MODES									
Modulated by PRBS at maximum data rate, Maximum Output Power									
DEVIATIONS FROM TEST STANDARD									
None									
REQUIREMENTS									
Maximum peak power spectral density conducted from a DSSS transmitter does not exceed 8 dBm in any 3 kHz band									
RESULTS					AMPLITUDE				
Pass					Power Spectral Density = -17.9 dBm / 3kHz				
SIGNATURE									
<div style="text-align: center;">  Tested By: _____ </div>									
DESCRIPTION OF TEST									
Power Spectral Density - High Channel									

